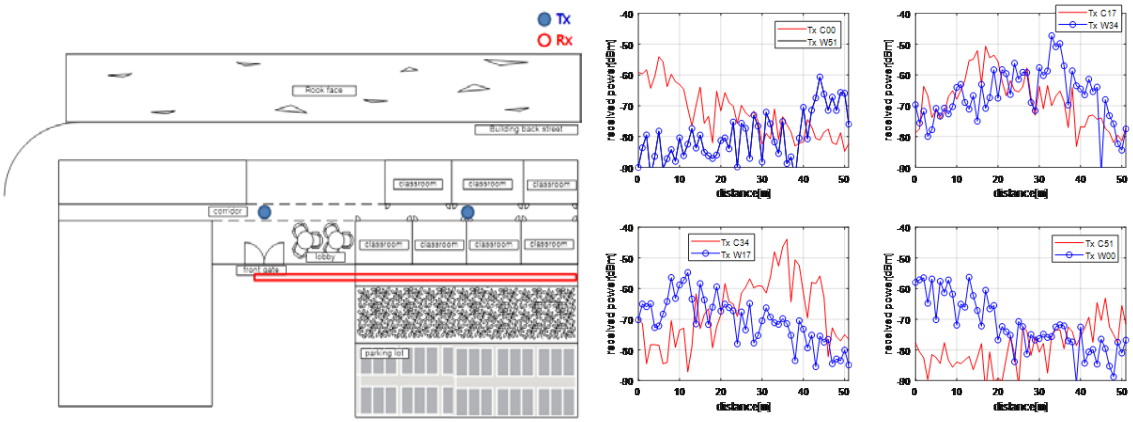
Comparisons between Indoor-to-Outdoor and Outdoor-to-Indoor Propagation Characteristics at 3 and 6 GHz

Jae-Beom Jin [(1)], Dong-Woo Kim[(1)] , In-Ryeol Kim[(1)] , Il-Yong Lee[(2)], Jong-Hyuk Lim[(2)], Jong-Il Lee[(2)], Sung-Won Park[(2)], and Soon-Soo Oh[(1)]
(1) Chosun University, Gwangju, Republic of Korea
(2) National Radio Research Agency, Naju, Republic of Korea
ssoh@chosun.ac.kr

As the demand for new radio resources has rapidly increased, it is necessary to develop an integrated forecasting model of next generation radio wave propagation through measurement. Especially, the building indoor-to-outdoor(I2O) and outdoor-to-indoor(O2I) characteristics are interested since some wonder they could be interchanged or not.

Figure 1 shows the measurement scenarios of building I2O and O2I performed performed at Chosun University in Korea. Figure 1 (a) shows that Tx is placed in the building corridor, and Rx is placed outside the building exterior wall. Figure 1 (b) shows the received power for Tx positions. Generally, the point-to-point values of I2O and O2I are similar. However, as shown in Fig. 1(b), as asymmetric structures such as lobby and trees are formed, different curves are appeared. Therefore, through this preliminary measurement, it could been confirmed that the building I2O and O2I loss are different. These results can be utilized when frequency allocating and sharing.



(a) (b)

Figure 1. Measurements for building I2O and building O2I
(a) Measurement point (b) Received powers

Acknowledgment

This work was supported by the ICT R&D program of MSIP/IIP. [2018-0-01439 ,"Analysis of Radio Propagation Characteristics and Development of Prediction Models in Indoor and Outdoor Environments below 40 GHz"].